95   **Product assembly or manufacturing:**
This subclass is indented under 90. Subject matter wherein the data processing system or calculating computer controls, monitors, or manages the sequential operations of a production process.

SEE OR SEARCH CLASS:

12,   Boot and Shoe Making, subclass 142 for the process of boot and shoe making.

29,   Metal Working, appropriate subclass, especially subclasses 592 through 559for method of mechanical manufacture.

53,   Package Making, appropriate subclass for an apparatus for and method of encompassing, encasing, or completely surrounding goods or materials with a cover made from sheet material stock.

56,   Harvesters, appropriate subclass for a means of severing crops which grow above the surface of the ground, without disturbing the soil, and a means for gathering the same from the field after they are severed.

59,   Chain, Staple, and Horseshoe Making, appropriate subclass for the manufacture as it relates to chains, staples, or horseshoes.

79,   Button Making, appropriate subclass for machines or processes for making buttons.

118,   Coating Apparatus, subclasses 663 through 714for the control of an apparatus for applying or obtaining a surface coating on a base or for impregnating base materials.

142,   Wood Turning, appropriate subclasses for wood turning.

144,   Woodworking, subclasses 329 through 381for woodworking processes.

156,   Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 1 through 344for a manufacturing process or apparatus including a step of adhesively bonding parts together or the manufacture of articles of commerce in which one of the manufacturing steps includes a chemical reaction.

162,   Paper Making and Fiber Liberation, subclasses 100 through 231for the process of paper making.

163,   Needle and Pin Making, subclasses 1 through 5for needle or pin manufacturing.

216,   Etching a Substrate: Processes, appropriate subclasses for the manufacturing of a substrate by etching.

234,   Selective Cutting (e.g., Punching), appropriate subclass for a method or apparatus for a selective cutting process.

264,   Plastic and Nonmetallic Article Shaping or Treating: Processes, appropriate subclass.

300,   Brush, Broom, and Mop Making, subclass 21 for the process of manufacturing.

340,   Communications: Electrical, subclasses 3.1 through 3.9for selective electrical communication having monitoring in addition to control (e.g., supervisory).

412,   Bookbinding: Process and Apparatus, subclasses 1 through 8for the process of bookbinding.

427,   Coating Processes, appropriate subclass for applying or obtaining a coating or surface.

96   **Integrated system (Computer Integrated Manufacturing (CIM)):**
This subclass is indented under 95. Subject matter wherein the sequential operations of multiple manufacturing processes are interconnected by a host management system (e.g., Production Integrated Processing Equipment (PIPE), cluster tools, etc.).

97   Design or planning:
This subclass is indented under <u>95</u>. Subject matter wherein the calculating computer or data processing system analyzes, prioritizes, or modifies input data to arrange the sequential operations for product manufacturing or to configure a product.

SEE OR SEARCH CLASS:

<u>703</u>,   Data Processing: Structural Design, Modeling, Simulation, and Emulation, subclass <u>1</u> for a data processing system or calculating computer designed for or utilized in structural design as it relates to mechanical engineering.

<u>706</u>,   Data Processing: Artificial Intelligence, cross-reference art collections 919+ related to the designing of objects, plan preparation, program preparation, computer aided design (i.e., CAD), or computer aided software engineering (i.e., CASE).

<u>716</u>,   Data Processing: Design and Analysis of Circuit or Semiconductor Mask, subclasses <u>1</u> through <u>18</u>for a data processing system or calculating computer designed for or utilized in the design and analysis of electrical components and circuits made up thereof.

98   3-D product design (e.g., solid modeling):
This subclass is indented under <u>97</u>. Subject matter wherein the planned or designed structure is represented as a three dimensional image in two-dimensional space.

SEE OR SEARCH THIS CLASS, SUBCLASS:

<u>163</u>,   for 3-D sculpturing in the machining process.

SEE OR SEARCH CLASS:

<u>345</u>,   Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, subclasses <u>418</u> through <u>475</u>and subclass 607 for three-dimensional or perspective data processing for display presentation.

<u>359</u>,   Optics: Systems (Including Communication) and Elements, subclass <u>458</u> for stereoscopic or three-dimensional imaging.

<u>382</u>,   Image Analysis, subclass <u>154</u> for 3-D or stereo image analysis.

99   Resource allocation:
This subclass is indented under <u>97</u>. Subject matter wherein the data processing system or calculating computer control the coordination and logistics of physical objects in a manufacturing process.

SEE OR SEARCH THIS CLASS, SUBCLASS:

<u>28</u>   through <u>55,</u> wherein a control seeks to optimize a system"s performance criterion (e.g., efficiency, consumption, or profit).

SEE OR SEARCH CLASS:

<u>705</u>,   Data Processing: Financial, Business Practice, Management, or Cost/Price Determination, subclass <u>8</u> for allocation of resources or scheduling an administrative function by an automated business or management system.

<u>100</u>   **Job scheduling:**
This subclass is indented under <u>99</u>. Subject matter wherein the coordination of the physical object is controlled by a system constraint (e.g., time, machine availability, etc.).

SEE OR SEARCH CLASS:

<u>234</u>,   Selective Cutting (e.g., Punching), subclasses <u>23</u> through <u>24</u>for a means to detect the order of occurrence of input data.

<u>101</u>   **Priority ordering:**
This subclass is indented under <u>100</u>. Subject matter wherein the data processing system or calculating computer operates in a supervisory mode to order the sequential operations.

<u>102</u>   **Job release determination:**
This subclass is indented under <u>100</u>. Subject matter wherein the data processing system or calculating computer monitors and controls the sequence of manufacturing operations based on task output.

<u>103</u>   **Constraints or rules:**
This subclass is indented under <u>97</u>. Subject matter wherein the data processing system or calculating computer monitors and controls the sequence of manufacturing operations based on a set of operating rules or regulations.

<u>104</u>   **Knowledge based (e.g., expert system):**
This subclass is indented under <u>103</u>. Subject matter wherein the data processing system or calculating computer generates, monitors, modifies, or controls the sequential manufacturing operations using historical data to infer a result.

SEE OR SEARCH THIS CLASS, SUBCLASS:

<u>49</u>,   for an expert system (e.g., knowledge based) control system.

SEE OR SEARCH CLASS:

<u>706</u>,   Data Processing: Artificial Intelligence, subclass <u>14</u> for adaptive systems, cross-reference art collections 902-934 for art related to the applications of artificial intelligence, in particular cross reference art collection 904 wherein artificial intelligence is used in applications related to manufacturing and machines.

<u>105</u>   **Rework or engineering change:**
This subclass is indented under <u>97</u>. Subject matter wherein the data processing system or calculating computer monitors and controls the sequence of manufacturing operations based on engineering or manufacturing changes.

<u>106</u>   **Material requirement:**
This subclass is indented under <u>97</u>. Subject matter wherein the data processing system or calculating computer monitors and controls the sequence of manufacturing operations based on the necessary construction components.